Code: 15A05201 **R15**

B.Tech I Year II Semester (R15) Supplementary Examinations December 2018

DATA STRUCTURES

(Common to CSE and IT)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Define big oh (O) notation and give example.
(b) What is a pointer array? Give example.
(c) Define Push and Pop operations of stack.
(d) Distinguish between open and closed hashing.
(e) Define B tree and state its properties.
(f) Define connected and disjoint graphs.
(g) Define sort efficiency. Give the efficiency of straight insertion sort and quick sort.
(h) What is external sorting? What are the phases of external sorting?
(i) What is sentinel search?
(j) What is bucket hashing?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Write an algorithm to sort an array of integers in ascending order using array.

OR

3 Implement the following single linked list operations:

(a) Insertion of a node.
(b) Deletion of a node.
(c) Searching an element

UNIT – II

4 How do you evaluate postfix expression? Give example and write a function to evaluate postfix expression.

OR

5 Give the linked list representation of a priority queue. Write the algorithms to implement insertion and deletion operations on a priority queue.

UNIT – III

6 Explain various types of binary tree traversals with example and functions.

OR

7 Explain depth first search operation of a graph with example and write the algorithm.

UNIT – IV

8 An array contains the elements shown below:

3 13 7 26 44 23 98 57

Sort the array using bubble sort and shown the contents of the array at each step.

OR

9 Write a function to implement heap sort algorithm.

UNIT – V

10 Explain the concept of sequential search with example and write the pseudocode of the algorithm.

OR

11 Explain the concepts of the following:

(a) Midsquare method of hashing.
(b) Linear probe Collision Resolution.
(c) Linked list collision resolution.

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